

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

Title V draft permit No. V-00-038

J.L. FRENCH CORPORATION

GLASGOW, KENTUCKY

June 6, 2002

SEAN ALTERI, REVIEWER

Plant I.D. # 21-109-00065

Application Log # 53149 (G390)

SOURCE DESCRIPTION:

J.L. French Corporation is a secondary aluminum processing source located at 20 Prestwick Drive in Glasgow, Kentucky. The plant consists of two operations, a secondary aluminum production operation and a die casting operation. Scrap aluminum will be processed, and the finished die castings will be sold primarily as parts for internal combustion engines.

The scrap aluminum is first introduced to the aluminum thermal chip dryer. Oily and oil-free scrap are processed in a natural gas fired rotary drum thermal chip dryer. The exhaust from the chip dryer is sent directly to the lime-injected baghouse and to the atmosphere. Due to the insignificant organic content of the aluminum scrap, an afterburner will not be used.

After drying the aluminum scrap, the scrap is introduced into one of three (3) induction furnaces. The electric induction furnaces melt solid aluminum billets and various scrap chips processed by the dryer. The induction furnaces are classified as Group 2, using only dried clean scrap, or non-lacquered scrap that has been dried at a minimum temperature of 650°F. Fluxing is not conducted in Group 2 furnaces unless non-HAP generating gases are used. The exhaust from the electric induction furnaces is routed to the lime injected baghouse and then exhausted to the atmosphere.

The facility also includes three (3) melt/hold furnaces that will use both chlorine gas fluxing and occasional melting of solid aluminum. The melt/hold furnaces are classified as Group 1 furnaces. Some refining is performed when copper is added to adjust the alloy content of the aluminum product. Chlorine injection fluxing is performed continuously to remove magnesium and other impurities which rise to the top of the furnace and are manually skimmed off as dross. The molten dross is routed to the dross cooler. The emissions from the melt/hold furnaces are routed to the lime injected baghouse and out to the atmosphere.

The dross from the melt/hold furnaces is cooled in the rotary dross cooler. The rotary dross cooler is used to reduce the temperature of the dross after skimming the melt/hold furnaces. The dross will be shipped off-site for recycling. The dross cooler's exhaust will be routed to the lime injected baghouse and out to the atmosphere via stack.

The molten aluminum from the furnaces is transferred to a holding furnace at each die cast machine. The aluminum is injected into a die cast from the holding furnace, allowed to solidify, and the cast part is removed for finishing. A solution of water and die lube is sprayed on the open die for cooling and to apply a release agent for easy removal of the casting. The die lube consists of 87.2% water, 12.0% petroleum oil, and 0.8% graphite and paraffin wax. The die lube is diluted with water at 50:1 before application. Emissions from the die casting operations consist of organic compounds that are emitted as fugitive emissions.

COMMENTS:

J.L. French Corporation must comply with the U.S. EPA, NESHAP, maximum achievable control technology (MACT) standard for secondary aluminum production processes. No emission factors were available from the EPA for the reverberatory melt furnaces; therefore, the MACT emission limits were used as emission factors for actual and allowable operating scenarios.

The control equipment utilized by J.L. French Corporation will be the air filter baghouse outfitted with a lime injection system. The air filter baghouse will control particulate matter and particulate metals emissions from the chip dryer, induction furnaces, melt/hold furnaces, and the dross cooler. The lime injection system will control hydrogen chloride emissions and dioxin/furans generated during the chlorine fluxing operation. The control efficiency of the baghouse for particulates will be 99 percent. Emission rates and control efficiencies for hydrogen chloride and dioxin/furans are unknown and will be determined by the performance test. J.L. French also plans to utilize an ammonia injection system as a control equipment device. The efficiency of the ammonia injection system is unknown.

EMISSION AND OPERATING CAPS DESCRIPTION:

The J.L. French plant is expected to emit hydrogen chloride (HCl) emissions from the melt/hold furnaces in amounts that will exceed the major source threshold of 10 tons/yr for any one hazardous air pollutant. J.L. French Corporation is required to comply with the secondary aluminum NESHAP standard, 40 CFR 63, Subpart RRR.

The emission limitation imposed on the aluminum thermal chip dryer for THC is 0.80 lbs/ton feed, and the limitation for dioxin furans (D/F) is 3.5×10^{-5} gr/ton.

Group 1 furnaces have emission limitations imposed by the NESHAP standard for the secondary aluminum production facilities. The melt/hold furnaces are subject to the following emission limitations:

Particulate Matter: 0.80 lbs PM/ton feed; [40 CFR 1505(i)(2)]

HCl: 0.40 lbs/ton feed; [40 CFR 1505(i)(3)]

D/F: 2.1×10^{-4} gr D/F TEQ per ton feed. [40 CFR 1505(i)(4)]

There are no emission limitations listed in the MACT associated with the Group 2 furnaces, induction furnaces (clean charge only). However, the emission limitations listed in 401 KAR 59:010 are applicable to the induction furnaces. The dross cooler has an emission limitation for particulate matter of 0.04 gr/dscf.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.